

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 13 DEC 2004



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Applicant's or agent's file reference 58003WO003	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/21455	International filing date (day/month/year) 08.07.2003	Priority date (day/month/year) 31.07.2002
International Patent Classification (IPC) or both national classification and IPC F01N3/28		
Applicant 3M INNOVATIVE PROPERTIES COMPANY		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 23.02.2004	Date of completion of this report 10.12.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tlx 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Mangin, S Telephone No. +31 70 340-1874 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/21455**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-23 as originally filed

Claims, Numbers

2, 7-14 as originally filed
1, 3-6, 15-17 received on 13.09.2004 with letter of 13.09.2004

Drawings, Sheets

1/2-2/2 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

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5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

see separate sheet

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-17
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-17
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations

see separate sheet

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Re Item I

Basis of the report

The new added claims 6 and 17 have not been examined as they contain subject-matter which extends beyond the content of the application as filed (Art. 19(2) and 34(2)(b)). The subject-matter of claims 6 and 17 is a generalisation of the specific example made on p.11, l.4-12. From a two-layer mat, one layer consisting of S2-glass and the other layer of E-glass disclosed in the description, the subject-matter of the claims have been broadened to at least two layers, possibly including other layers and one of the layers comprising S2-glass and another E-glass, which may include other fibers.

Furthermore in the description, it is specified that the layer is used in a diesel catalytic converter, that S2-glass layer is placed against the monolithic side of the catalytic converter and that the E-glass layer is placed against the metal housing side. This again has been broadened in claims 6 and 17, by not specifying the diesel catalytic converter.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The following documents (D1-D2) are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US 5380580

D2: US 5290522

1. Independent Claim 1 and 12

Document D2 (col. 1, l.43-col.2, l.68, claims 1-13, fig) discloses a pollution control device with a nonwoven mat comprising a plurality of layers. The nonwoven mat being a non-intumescent mat comprising at least 90% of chopped Magnesium Aluminium Silicate glass fibres, having an average diameter greater than 5 micrometers and a length of 0.5 to 15 mm. The glass fibres being needle punched

Claims 1 and 12 differ from D2 in that the composition of the magnesium

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aluminum silicate glass fiber layers differs in their magnesium aluminum silicate glass fiber composition.

Depending on the change of composition, length or diameter of the fibers or chemical composition, the technical effect provided may be good performance in hot vibrating condition but may also be to provide an alternative composition.

The objective technical effect is thus to provide an alternative composition of the nonwoven mat.

D1 (examples 4 and 5) disclose a nonwoven mat having 2 layers of different composition. **The subject-matter of claims 1 and 12 does not therefore involve an inventive step according to Art. 33(3) PCT.**

2. Claims 2-11 and 13-17

Claim 2 and 15: D2 (claim 1) discloses amounts of Aluminium oxide (12.6-32%), silicon oxide (79.9-55%) and Magnesium oxide (4-20%).

Claim 3-4, 13-14: D1 (example 4) discloses a multi-layer nonwoven comprising layers differing in the diameter of the glass fibre and their composition

Claim 5 and 16: D2 (Example 1) discloses the use of S2-glass. E-, S- and R-glass are typically the type of fibres used for the present application.

Claim 7: D2 (examples 1-3) discloses mat with density between 0.36 and 0.43 g/m³.

Claims 8-11: D1 (col.3, l.55-61) discloses the flexible nonwoven useful as a mounting mat for metal or ceramic monolithic catalytic converters, filtration media for diesel exhaust filter elements and catalyst support.

Therefore, the subject-matter of claims 2-11 and 13-17 is not inventive according to Articles 33(3) PCT.